CLAIMS

What is Claimed is:

1. An apparatus to record data on an optical information recording medium, the apparatus comprising:

an error correction code (ECC) encoder which ECC-encodes main data to generate a plurality of ECC blocks, each of the ECC blocks comprising sectors and each of the sectors having an identifier;

an interleaver which extracts and arranges the identifiers from ones of the ECC blocks to generate a recording block such that adjacent identifiers are of different ECC blocks;

a modulating unit which modulates the generated recording block; and

a recording unit which records the modulated recording block.

2. The apparatus according to claim 1, wherein said interleaver alternately and equally extracts and arranges the identifiers at predetermined intervals, and interleaves the ECC-encoded main data included in the sectors corresponding to the arranged identifiers.

3. The apparatus according to claim 2, wherein said interleaver performs the interleaving in units of one or more rows.

4. The apparatus according to claim 2, wherein said interleaver performs the interleaving in units of at least a part of the sectors.

5. An apparatus to record data on an optical information recording medium, the apparatus comprising:

an error correction code (ECC) encoder to ECC-encode main data to generate first and second ECC blocks, each of the first and second ECC blocks comprising sectors and each of the sectors includes an identifier;

an interleaver which arranges an identifier included in the first sector of the first ECC block as a first identifier, arranges an identifier included in the first sector of the second ECC block as a second identifier, arranges an identifier included in the second sector of the first ECC block as a third identifier, arranges an identifier included in the second sector of the second

ECC block as a fourth identifier, arranging identifiers included in the remaining sectors of the first and second ECC blocks with the same algorithm, interleaves ECC-encoded main data in the first sectors of the first and second ECC blocks to sequentially correspond to the first arranged identifier and the second arranged identifier, interleaves ECC-encoded main data in the second sectors of the first and second ECC blocks to correspond to the third and fourth arranged identifiers, and interleaves ECC-encoded main data included in the remaining sectors of the first and second ECC blocks with the same algorithm to generate a recording block;

a modulating unit which modulates the generated recording block; and

a recording unit which records the modulated recording block.

6. The apparatus according to claim 5, wherein said interleaver alternately and equally extracts and arranges the identifiers at predetermined intervals.

7. The apparatus according to claim 6, wherein said interleaver performs the interleaving in units of one or more rows.

8. The apparatus according to claim 6, wherein said interleaver performs the interleaving in units of at least a part of the sectors.

9. An optical information reproducing apparatus comprising:

a reading unit to read data from a recording block of an optical information recording medium, wherein identifiers from ones of error correction code (ECC) blocks are alternately arranged in the recording block, each of the ECC blocks comprising a plurality of sectors having corresponding identifiers;

a demodulating unit to demodulate said read data; and

an ECC decoding unit to decode said de-modulated data.

10. The optical information reproducing apparatus according to claim 9, wherein said ECC decoding unit comprises:

a de-interleaver to de-interleave said recording block to generate a plurality of reproduced ECC blocks; and

an ECC decoder to decode said demodulated data into main data with an ECC and to output said main data.

11. The optical information reproducing apparatus according to claim 9, wherein said demodulation is performed depending on the modulation of said recording block.